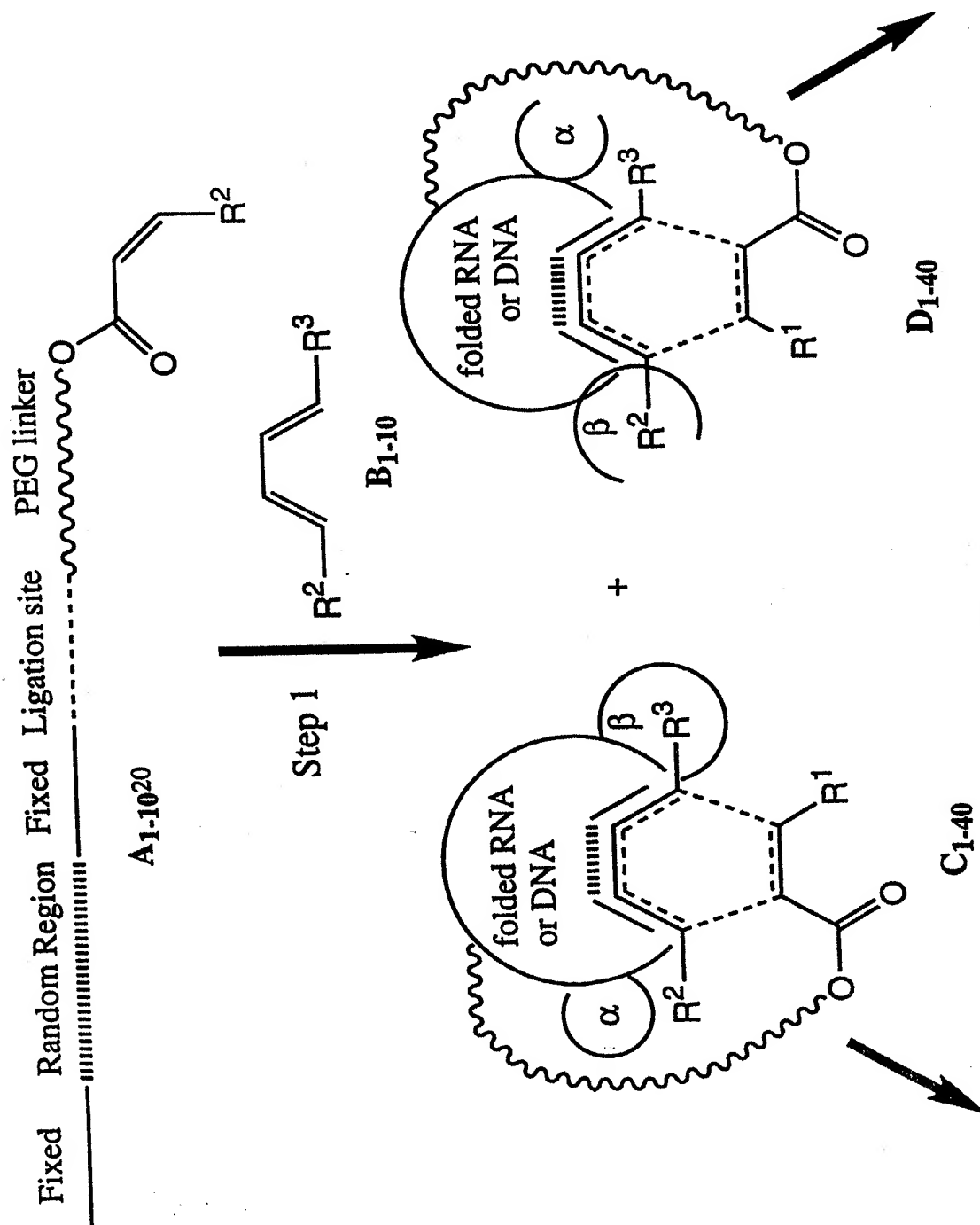


FIG. 1



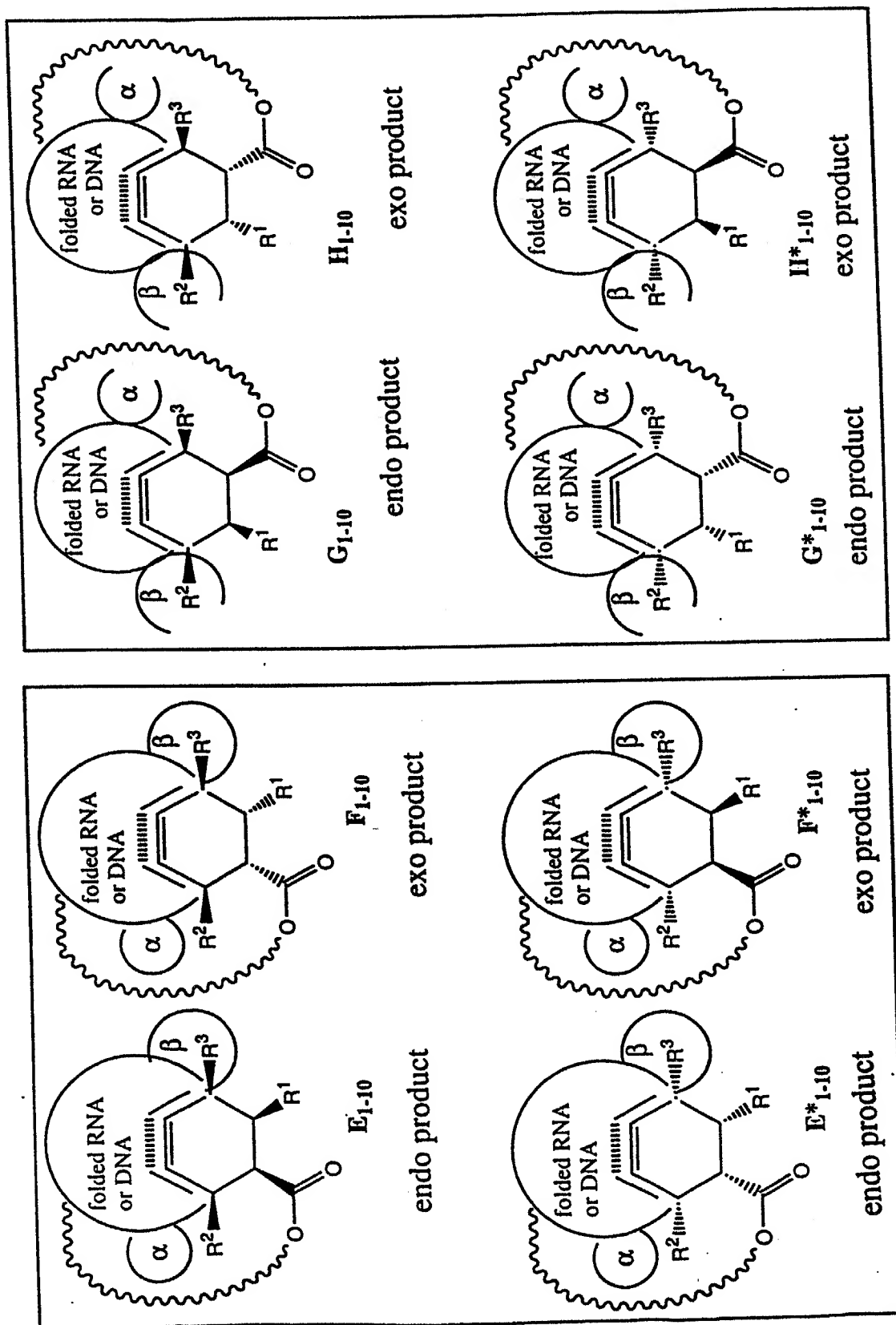


FIG. 2B

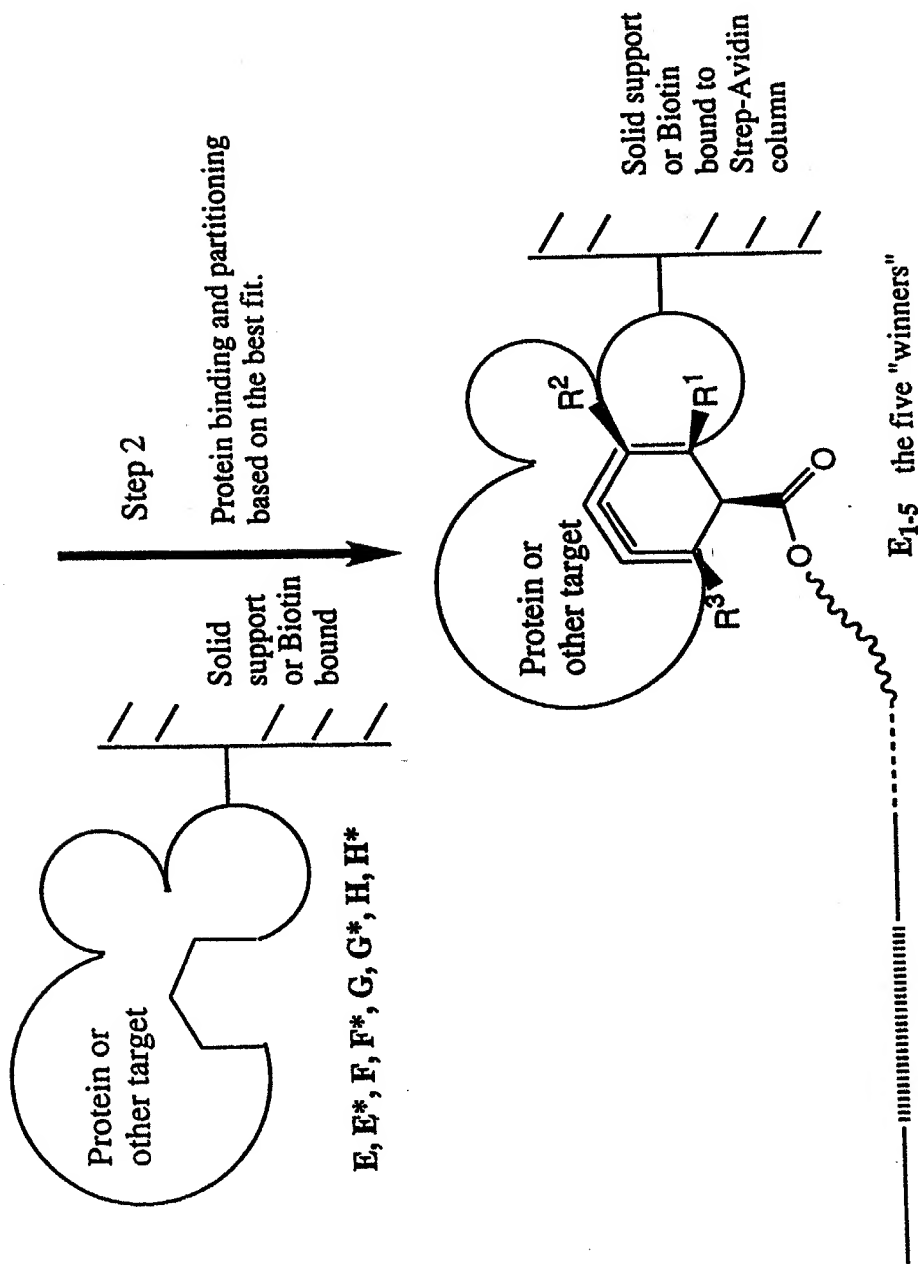


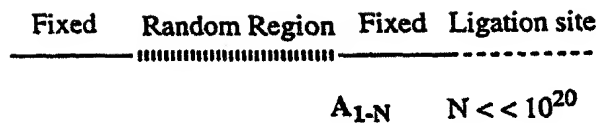
FIG. 2C

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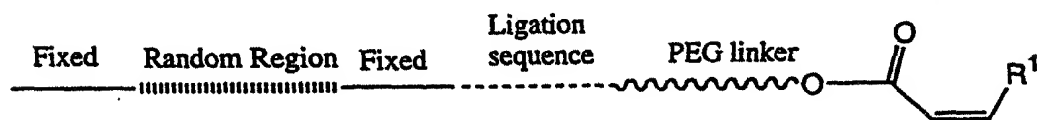
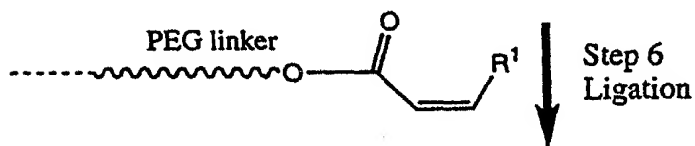
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Step 4
 PCR

Step 5
 T7 transcription



Note that this RNA structure when folded up is the active catalyst for the formation of the cyclohexene products denoted by E above



Repeat Steps 1 through 6 until either catalytic activity is maximized as measured after Step 5 or until binding affinity as in Step 2 levels off and A becomes nonrandom.

Isolate clones and sequence.

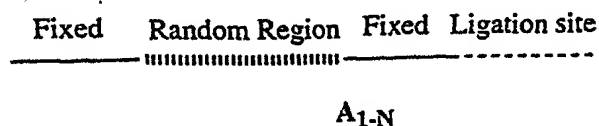


FIG. 2D

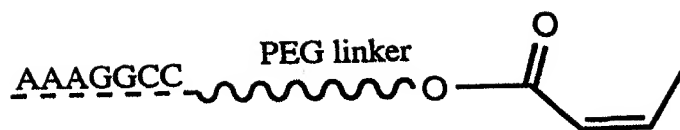


FIG. 3A

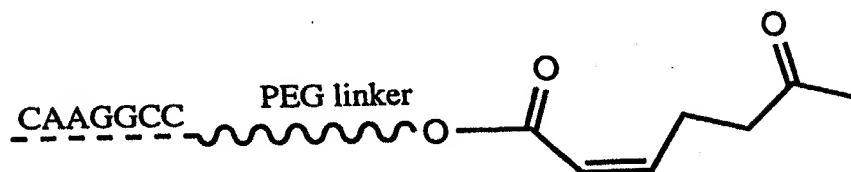


FIG. 3B

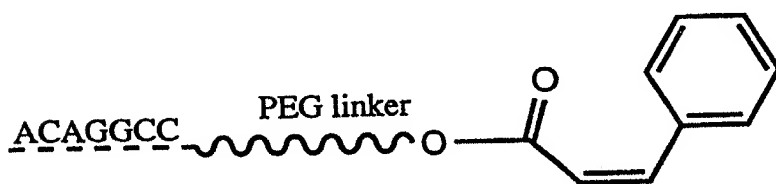


FIG. 3C

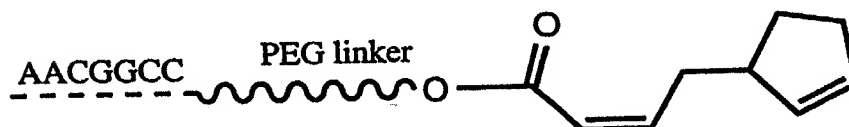


FIG. 3D

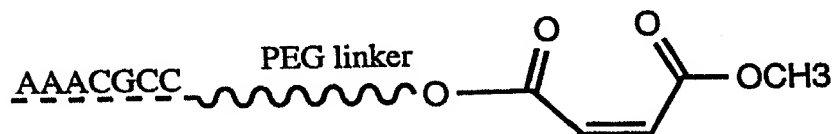
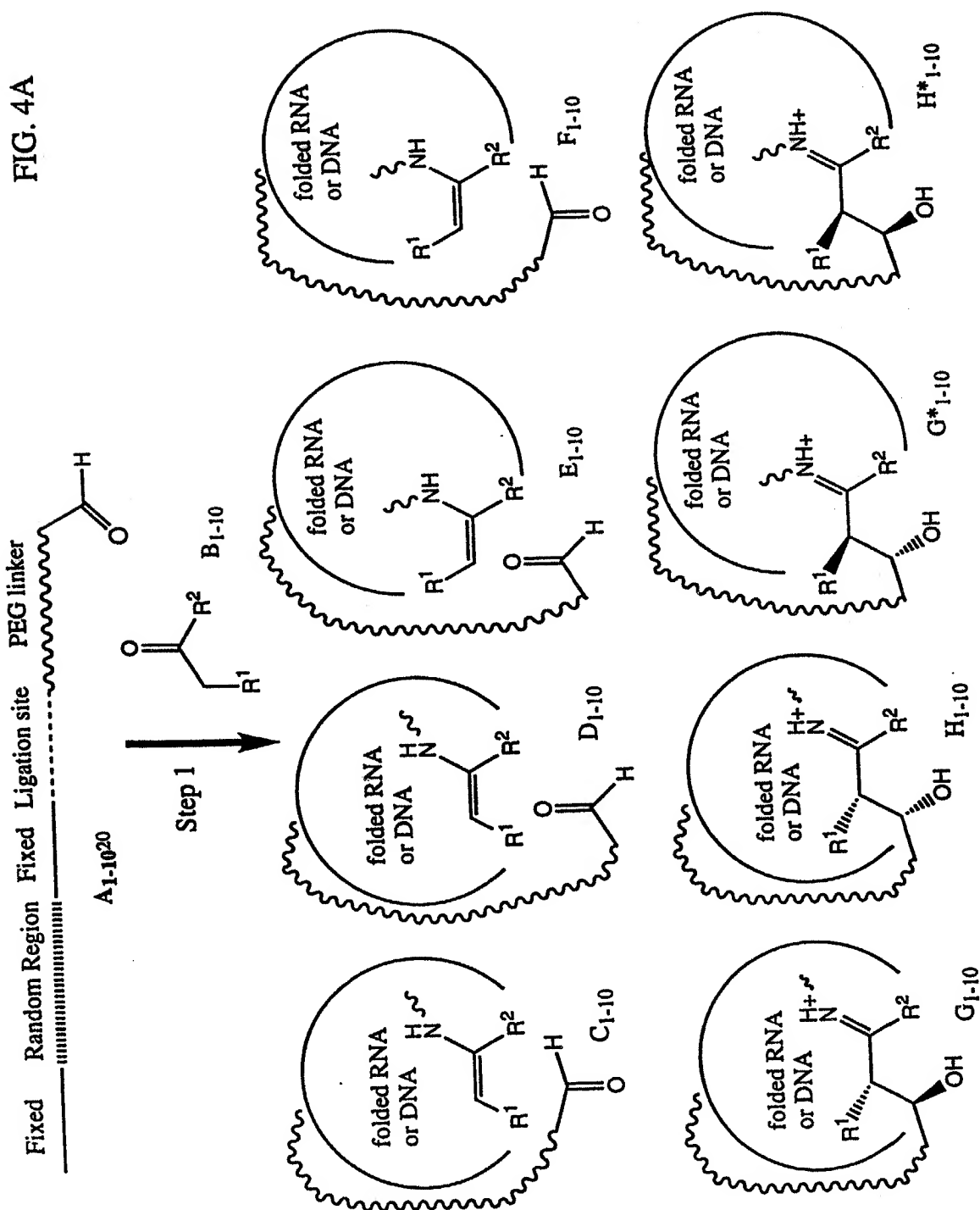


FIG. 3E

FIG. 4A



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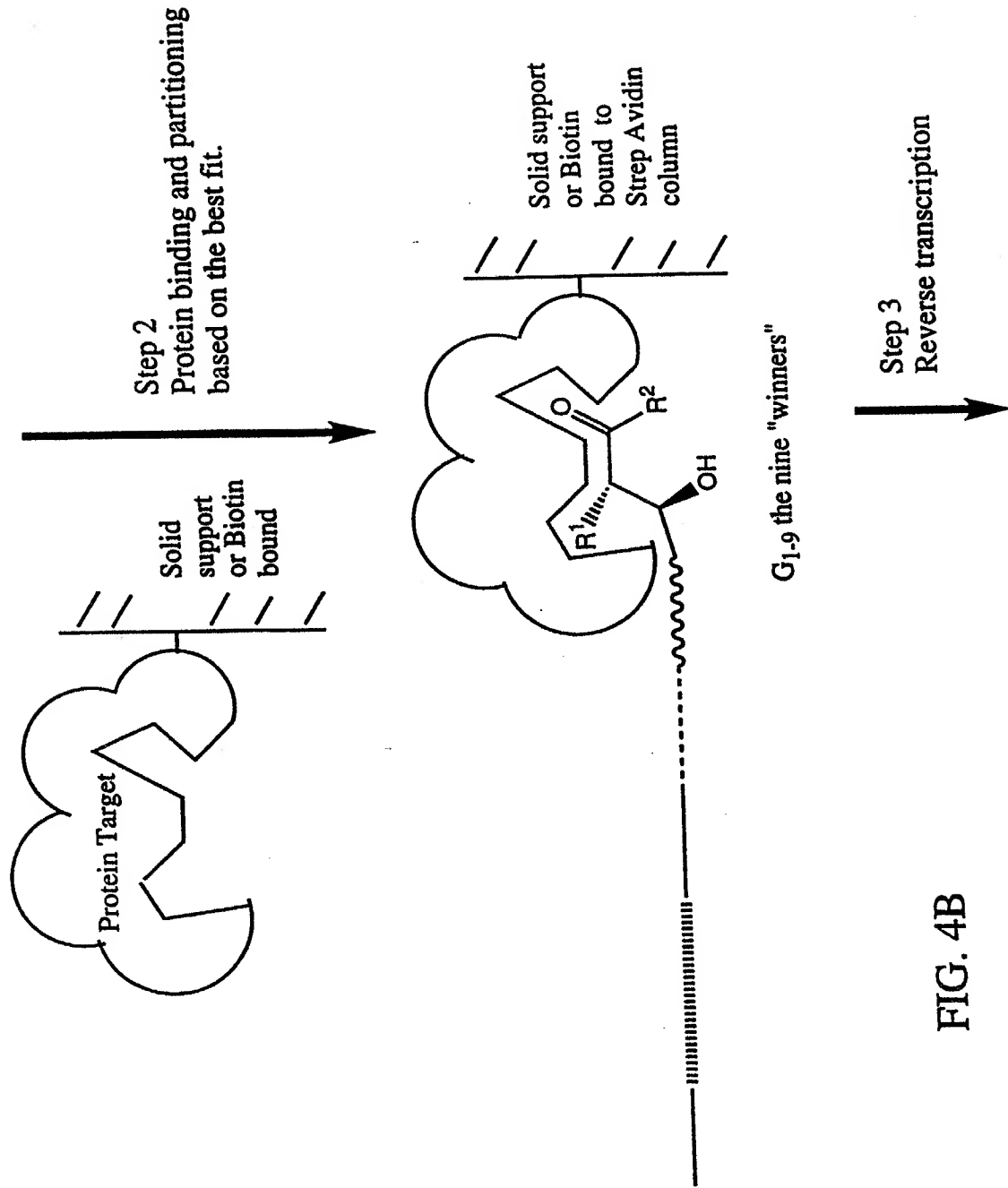


FIG. 4B

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Step 4 PCR

Step 5
T7 transcription

Fixed Random Region Fixed Ligation site

A_{1-N} N << 10²⁰

Step 6 Ligation

PEG linker

O
||
H

Fixed Random Region Fixed Ligation sequence PEG linker

O
||
H

Repeat Steps 1 through 6 until either catalytic activity is maximized as measured after Step 5 or until binding affinity as in Step 2 levels off and A becomes nonrandom.

Isolate clones and sequence.

Fixed Random Region Fixed Ligation site

A_{1-N}

FIG. 4C

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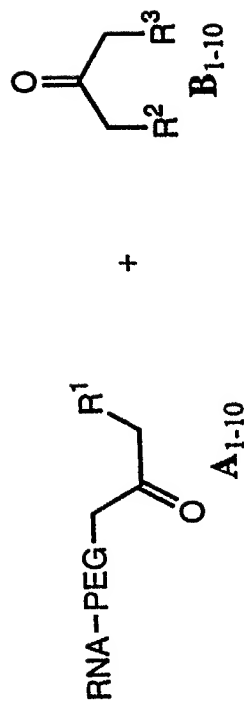


FIG. 5A

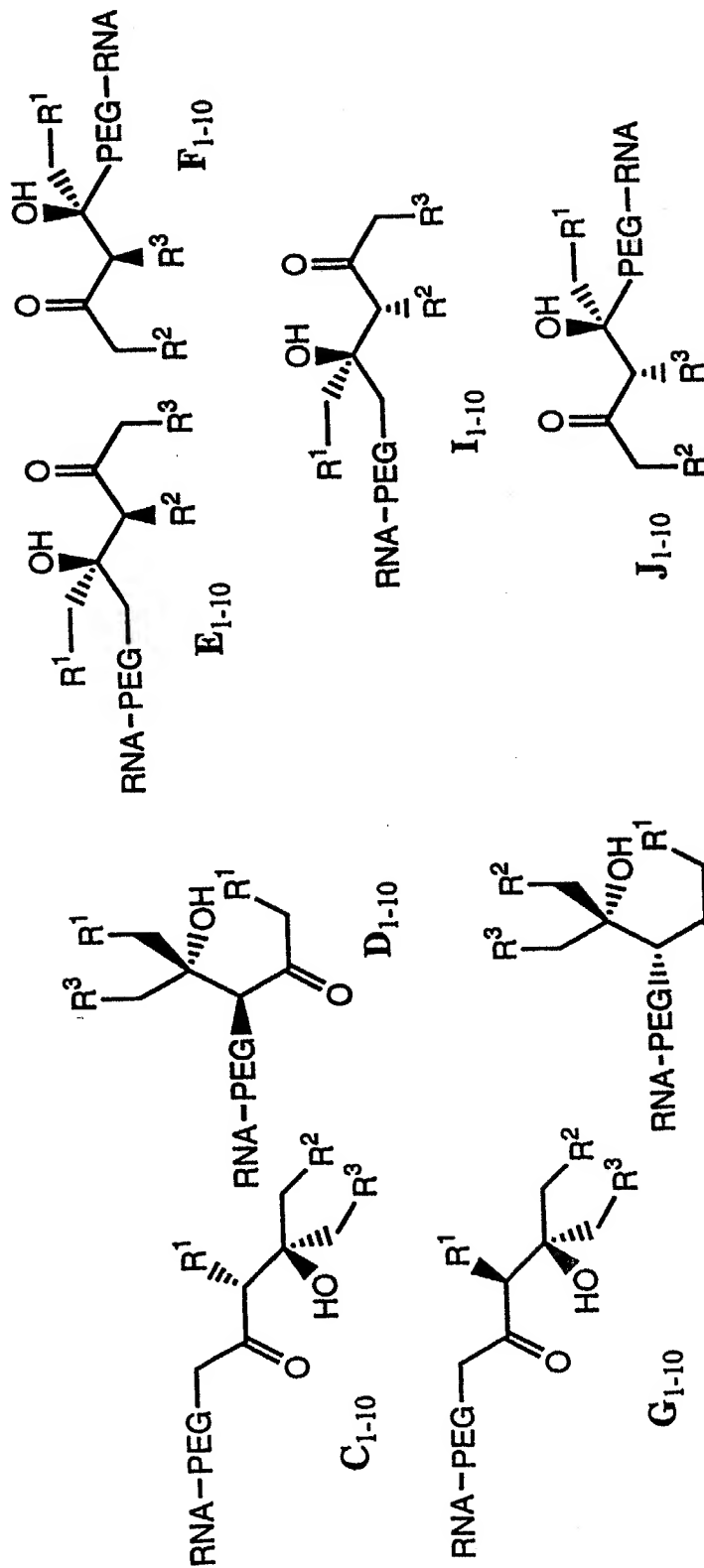


FIG. 5C

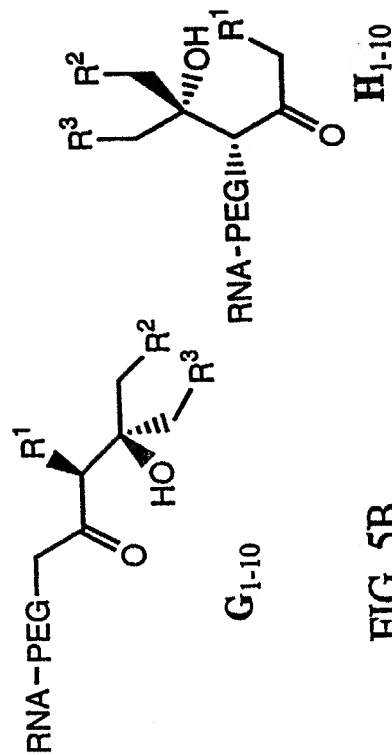


FIG. 5B

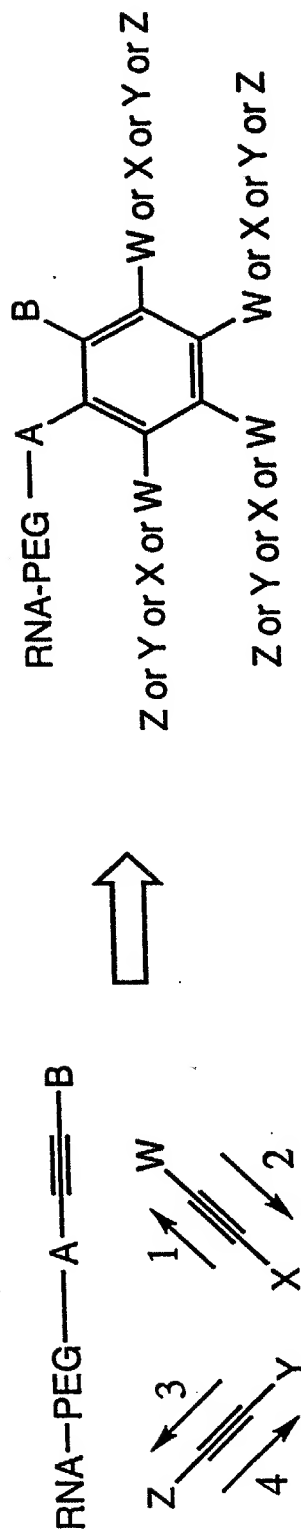


FIG. 6A

1	2	3	4
1	1,1	2,1	3,1 4,1
2	1,2	2,2	3,2 4,2
3	1,3	2,3	3,3 4,3
4	1,4	2,4	3,4 4,4

FIG. 6B

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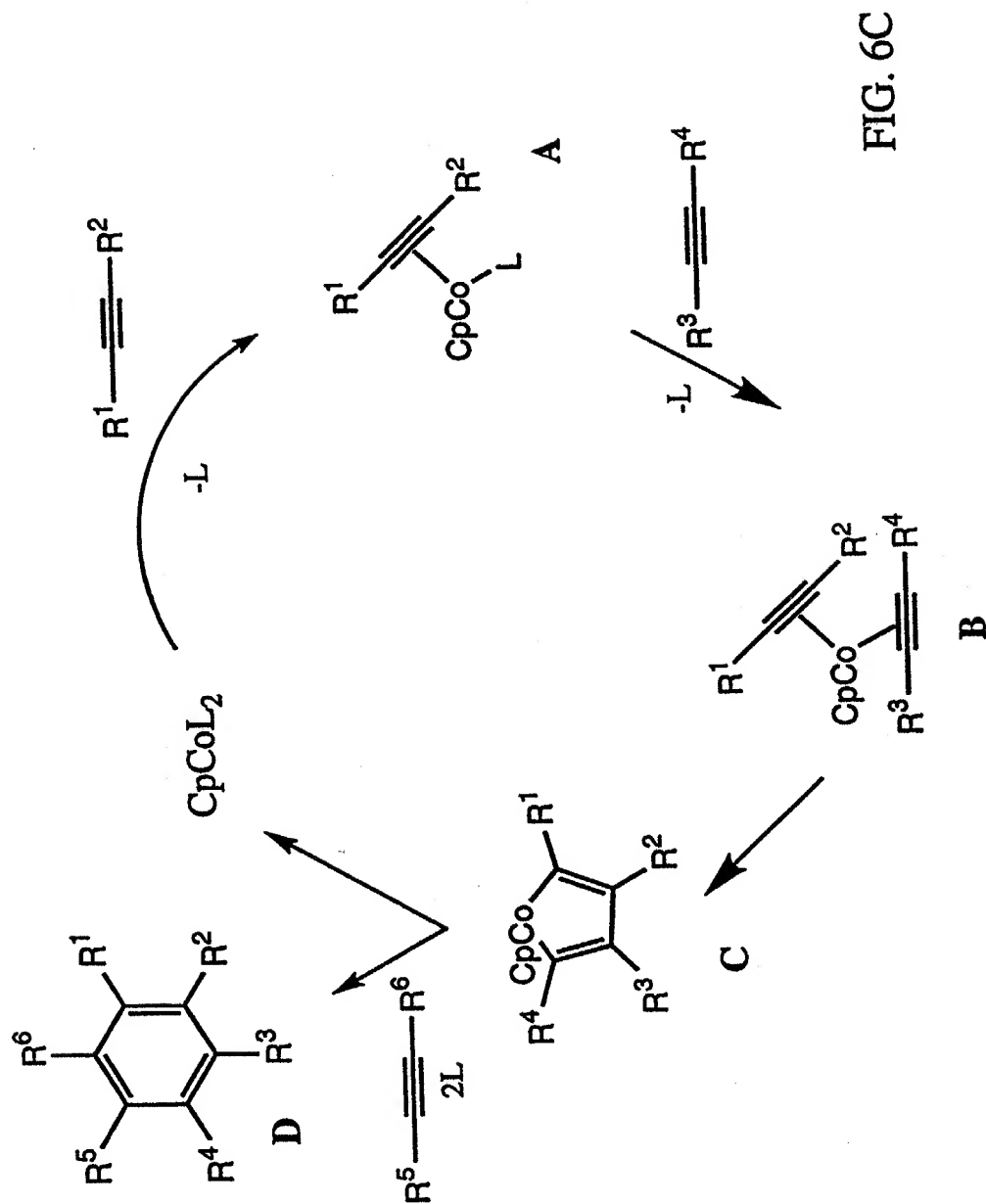


FIG. 6C

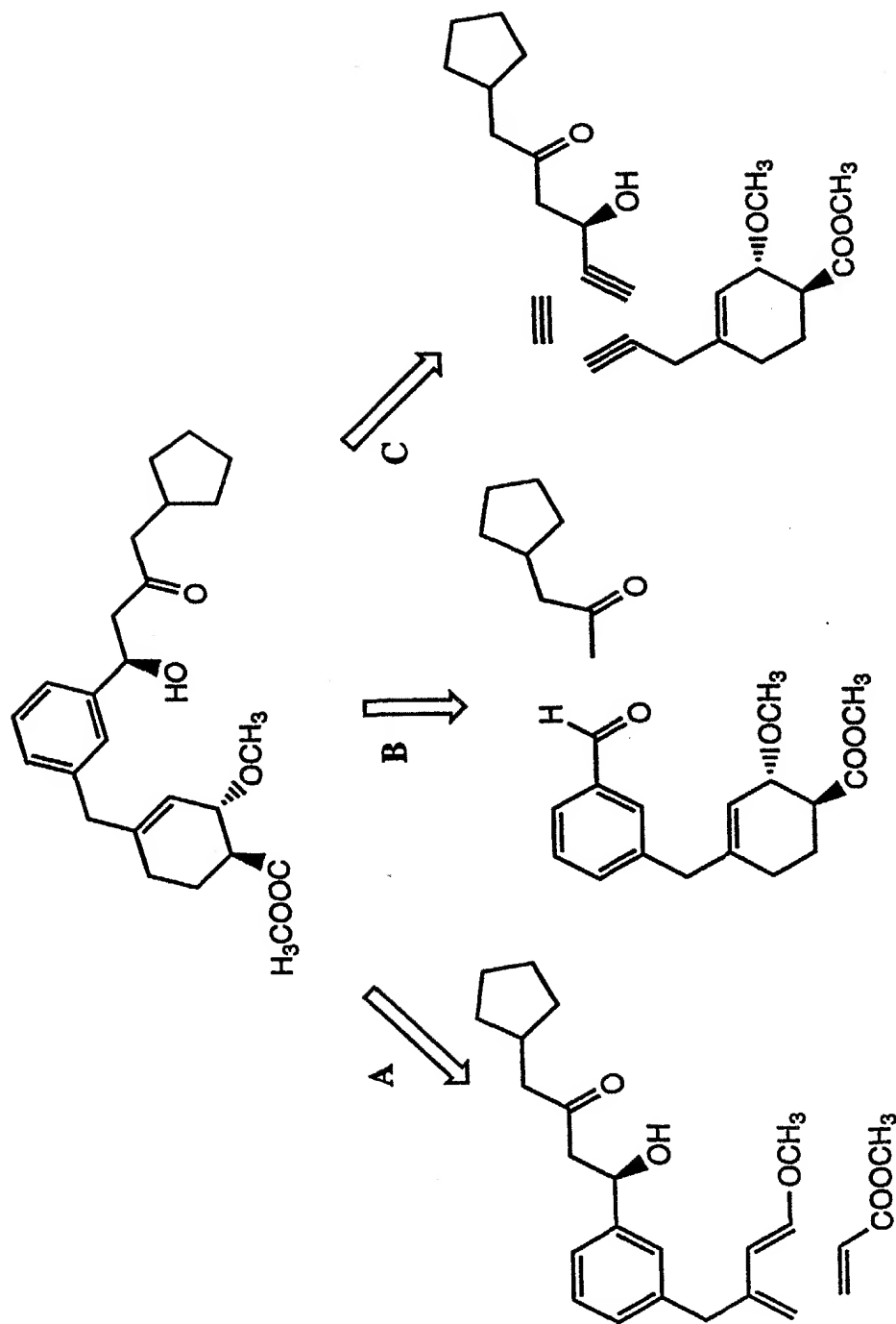


FIG. 7